Application Notes

Minncare® Cold Sterilant

Sanitization of High Purity Piping

The purpose of this application note is to acquaint high purity water system users with the advantages of using Minncare Cold Sterilant to sanitize their distribution piping systems. Put simply: What is Minncare?; Why should I use Minncare?; How do I use Minncare?

Why Should I Sanitize My High Purity Water System?

Recent studies have demonstrated that nearly all high purity DI piping systems will form biofilms with time. This has proven true even for fluorocarbon piping systems. This biofilm will intermittently shed microorganisms into the deionized water and will contribute to particulate levels, bacteria levels and total organic carbon levels. These contaminants can adversely affect your product, your product yields, your lab results, and the service run lengths of your water system filters.

What Is Minncare?

Minncare Cold Sterilant is a special chemical formulation that incorporates peroxyacetic acid, a hydrogen peroxide catalyst, and other inert ingredients.

How Much Minncare Do I Use?

Minncare Cold Sterilant is typically used in a 1% concentration, which is easily mixed on site. One gallon of Minncare Cold Sterilant will make 100 gallons of solution to sanitize the water system. You should estimate the hold-up volume of your system to determine how much Minncare Cold Sterilant you will require. The storage tanks in the system can be drained to reduce the volume of Minncare Cold Sterilant required to comprise a 1% concentration in the system.

How Do I Test For Minncare?

The Minncare 1% Test Strips will indicate the presence of a 1% Minncare Cold Sterilant solution at any test port in the system. The Minncare Residual Test Strips colormetrically indicate Minncare Cold Sterilant chemical levels at 100, 30, 10, 1 and 0 PPM. These residual test strips allow you to determine when the Minncare Cold Sterilant has been thoroughly rinsed out of the system.

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Why Should I Use Minncare?

- The Minncare formula provides a superior biocidal activity in the pipe and cleans out biofilms to prevent recolonization of bacteria.
- Fast rinse out and short contact times as low as 20 minutes will save system down time and labor.
- Minncare Cold Sterilant is compatible with most DI system components and does not cause any long-term wear on the system's materials of construction. (Note: Minncare may have an adverse effect on some metals such as aluminum, brass and copper. These components are typically not found in DI water systems but check your material's compatibility with your Filtration Technologies Group representative).
- Minncare is safe for disposal, and with minimal protective equipment (gloves, apron and eye protection are strongly recommended) is safe to handle with no exposure to toxic vapors.
- Minncare Cold Sterilant completely rinses out of the DI system leaving no residual contaminants behind. Minncare Cold Sterilant also breaks down naturally to acetic acid and hydrogen peroxide, which are very soluble in water. During the rinse phase, if you restart your UV sterilizers, you will produce a small amount of ozone that further cleans the piping system.
- Minncare Cold Sterilant is compatible with reverse osmosis membranes. This is most advantageous if an RO system is part of your high purity water system because you can disinfect the entire water system at the same time.
- Minncare is less expensive than other types of Cold Sterilant agents. For example, hydrogen peroxide requires a 5% to 10% concentration to disinfect a water system.
- Minncare is biodegradable and decomposes into oxygen, water and acetic acid, none of which harms the environment.

Disposal of Minncare

The disposability of Minncare Cold Sterilant solution is a significant advantage of the product. As the hydrogen peroxide breaks down naturally to water and oxygen, the peracetic acid breaks down into innocuous acetic acid and oxygen. This process occurs so quickly in a sanitary sewer that it poses no threat to municipal waste treatment plants. Minncare requires normal neutralization, as specified by the local municipality.

NOTE: A 1% solution of Minncare has a pH of around 3.5.

Conclusions About Minncare

Minncare Cold Sterilant eliminates bacteria and biofilms from DI piping systems. Unlike hydrogen peroxide, Minncare vapors are biocidal, which will improve its effectiveness in disinfecting storage tanks. Minncare is also an effective RO membrane Cold Sterilant, which aids in sanitizing DI makeup systems. Therefore, Minncare is considered a more thorough Cold Sterilant than hydrogen peroxide. Minncare is safer to handle and less aggressive to system components than hydrogen peroxide. It rinses out quickly and completely and is easily monitored with the Minncare Residual Test Strip. Minncare does not cause an increase in DI water contamination levels. In fact, when used in a comprehensive system disinfection, Minncare has been proven to reduce contaminant concentrations.

Visit our web site at:

www.minntech.com

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